

Whitman County Harlan Bridge



Elevation View

Whitman County Harlan Bridge



Deck View

Whitman County Harlan Bridge



Load Posting

Whitman County Harlan Bridge



Temporary Bent on Mudsills

Whitman County Harlan Bridge



Rotten Crushing Stringers at Abutment

Whitman County Harlan Bridge



Rotten Blocking and Stringer

Grays Harbor County Harp Bridge



Elevation View

Grays Harbor County Harp Bridge



Deck View



Grays Harbor County Harp Bridge

Load Posting

Grays Harbor County Harp Bridge



Bank Sloughing on Mudsill End

Grays Harbor County Harp Bridge



Mudsill Timber Abutment

Grays Harbor County Harp Bridge



Evidence of High Water Level & Leaking Deck

King County Bandaret Bridge



Elevation View

King County Bandaret Bridge



Deck View

King County Bandaret Bridge



Timber Repairs and Scour



King County
Bandaret
Bridge

Deteriorating
Timber Abutment
and Backwall

King County Bandaret Bridge



Rotten Failing Abutment Timbers

King County Bandaret Bridge



Glu-Lam Delamination and Failure of Bottom
Lam

Grant County F-NE Bridge



Elevation View

Grant County F-NE Bridge



Deck View



Grant County F-NE Bridge

Truss
Girder
Configuration

Grant County F-NE Bridge



Deck Condition

Walla Walla County McCown Bridge



Elevation View

Walla Walla County McCown Bridge



Deck View

Walla Walla County McCown Bridge



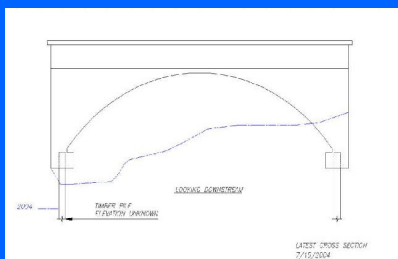
Abutment Condition and Scour

Walla Walla County McCown Bridge



Foundation Deterioration

Walla Walla County McCown Bridge



Cross Section

Clark County Klineline Bridge



Elevation View

Clark County Klineline Bridge



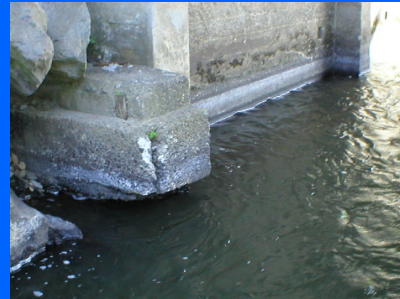
Deck View

Clark County Klineline Bridge



Center Pier Mitigation and Headcut
Downstream

Clark County Klineline Bridge



Abutment Scour

Clark County Klineline Bridge



Headcut Downstream of Center Pier

Clark County Klineline Bridge



Attempted Riprap Mitigation

Walla Walla County Sub Station Bridge



Elevation View

Walla Walla County Sub Station Bridge



Deck View

Walla Walla County Sub Station Bridge



Scour at Abutment

Grays Harbor County Brooklyn Bridge



Elevation View

Grays Harbor County Brooklyn Bridge



Deck View

Grays Harbor County Brooklyn Bridge



Abutment Repairs

Grays Harbor County Brooklyn Bridge



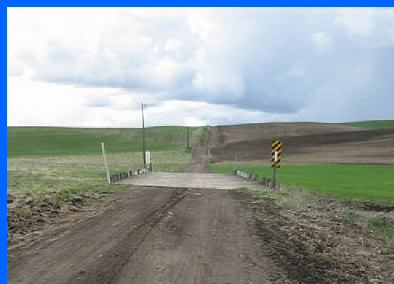
Log Raft Abutment

Whitman County Fox Bros Bridge



Elevation View

Whitman County Fox Bros Bridge



Deck View

Whitman County Fox Bros Bridge



Temporary Bent

Whitman County Fox Bros Bridge



Failing Stringers Supported by Temp. Bent

Whitman County Fox Bros Bridge



Rotten Failing Stringers

Whitman County Fox Bros Bridge



Typical Deck Condition

Whitman County Aune Bridge



Elevation View

Whitman County Aune Bridge



Deck View

Whitman County Aune Bridge



Deck Cantilever

Whitman County Aune Bridge



Rotting Abutment Cap

Whitman County Aune Bridge



Abutment Wall and Rotting Timber Cap

Adams County Duck Pond Bridge



Elevation View

Adams County Duck Pond Bridge



Deck View with Load Posting

Adams County Duck Pond Bridge



Bridge Approach

Adams County Duck Pond Bridge



Deck Condition

Adams County Duck Pond Bridge



Rotten Stringers

Adams County Duck Pond Bridge



Concrete Substructure/Timber Superstructure

**Kittitas County
Bar 14 Rd-Highline Canal Bridge**



Elevation View

**Kittitas County
Bar 14 Rd-Highline Canal Bridge**



Deck View

**Kittitas County
Bar 14 Rd-Highline Canal Bridge**



Timber Deterioration and Scour

**Kittitas County
Bar 14 Rd-Highline Canal Bridge**



Timber Crushing at Mudsill

**Kittitas County
Bar 14 Rd-Highline Canal Bridge**



Substructure Damage

**Kittitas
County
Bar 14 Rd-
Highline
Canal Bridge**



**Misalignment of
Superstructure**

Grays Harbor County Forrest Bridge



Elevation View

Grays Harbor County Forrest Bridge



Deck View

Grays Harbor County Forrest Bridge



One Abutment on Log Raft Mudsill

Grays Harbor County Forrest Bridge



One Abutment on Widely Spaced Piles

Grays Harbor County Forrest Bridge



Evidence of High Water at Mudsill

**City of Walla Walla
Palouse at Mill Creek Bridge**



Elevation View

**City of Walla Walla
Palouse at Mill Creek Bridge**



Deck View

**City of Walla Walla
Palouse at Mill Creek Bridge**



Concrete Deterioration Under Sidewalk

**City of Walla Walla
Palouse at Mill Creek Bridge**



Outside Concrete Beam Deterioration

**City of Walla Walla
Palouse at Mill Creek Bridge**



Outside Beam Bearing

**City of Walla Walla
Palouse at Mill Creek Bridge**



Outside Beams are Shallower than Interior

Franklin County Dilling Lane Bridge



Elevation View

Franklin County Dilling Lane Bridge



Deck View

Franklin County Dilling Lane Bridge



Repair to Reinforce Failing Stringers

Franklin County Dilling Lane Bridge



Load Posting

**City of Lind
Lind Coulee-Van Marter Bridge**



Elevation View

**City of Lind
Lind Coulee-Van Marter Bridge**



Deck View

**City of Lind
Lind Coulee-Van Marter Bridge**



Elevation View

**City of Lind
Lind Coulee-Van Marter Bridge**



Sagging Timber Stringers

**City of Lind
Lind Coulee-Van Marter Bridge**



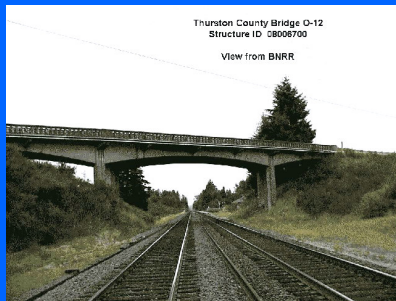
Bottom of Foundation Pier

**City of Lind
Lind Coulee-Van Marter Bridge**



Superstructure Concrete Deterioration

Thurston County Oly-Yelm Rd RR OC



Elevation View

Thurston County Oly-Yelm Rd RR OC



Deck View

Thurston County Oly-Yelm Rd RR OC



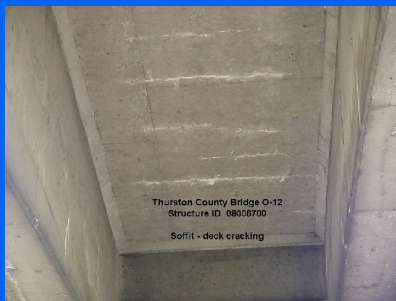
Seismically Vulnerable Tall Bearings

Thurston County Oly-Yelm Rd RR OC



Typical Deck Cracking

Thurston County Oly-Yelm Rd RR OC



Soffit Cracking – Rebar Exposure Starting

Thurston County Oly-Yelm Rd RR OC



Traffic Damage to Narrow Bridge

Garfield County Keith M.P. 12.26



Elevation View

Garfield County Keith M.P. 12.26



Deck View

Garfield County Keith M.P. 12.26



Widened Earth Filled Arch

Garfield County Keith M.P. 12.26



Settlement at Scouring Abutment

Garfield County Keith M.P. 12.26



Riprap Repair to Retain Approach Fill

Garfield County Keith M.P. 12.26



Scour Exposing Footing – Steel Side

**Grays Harbor County Schmidt Rd
Bridge 0.1**



Elevation View

**Grays Harbor County Schmidt Rd
Bridge 0.1**



Deck View

**Grays Harbor County Schmidt Rd
Bridge 0.1**



Mudsill Foundation

**Grays Harbor County Schmidt Rd
Bridge 0.1**



Repaired Mudsill Continues to Deteriorate

Whatcom Johnson Creek Bridge



Elevation View

Whatcom Johnson Creek Bridge



Deck View

Whatcom Johnson Creek Bridge



Repaired Substructure Continues to Deteriorate

**City of Tacoma
Puyallup River Bridge A**



Elevation View

**City of Tacoma
Puyallup River Bridge A**



Deck View

**City of Tacoma
Puyallup River Bridge A**



Typical High Load Damage

**City of Tacoma
Puyallup River Bridge A**



Typical Corrosion

**City of Tacoma
Puyallup River Bridge A**



Critical Damage (Has Been Repaired)

**City of Tacoma
Puyallup River Bridge A**



Traffic Back-up at Portland Avenue

**City of Tacoma
East Lincoln Avenue Bridge**



Elevation View

**City of Tacoma
East Lincoln Avenue Bridge**



Deck View

**City of Tacoma
East Lincoln Avenue Bridge**



Deck Patching

**City of Tacoma
East Lincoln Avenue Bridge**



Deteriorated Concrete at Steel Stringer Interface

**City of Tacoma
East Lincoln Avenue Bridge**



Typical Bearing Condition

**City of Tacoma
East Lincoln Avenue Bridge**



Intermediate Pier with Drift Accumulation

**Grays Harbor County Schmidt Rd
Bridge 0.5**



Elevation View

**Grays Harbor County Schmidt Rd
Bridge 0.5**



Deck View

**Grays Harbor County Schmidt Rd
Bridge 0.5**



Slab Bridge on Scouring Mudsills

**Grays Harbor County Schmidt Rd
Bridge 0.5**



Scouring Mudsill

**Grays Harbor County Schmidt Rd
Bridge 0.5**



Undermining Mudsill

**Grays Harbor County Schmidt Rd
Bridge 0.5**



Mudsill Detail

**Benton County
Oak Street CID Bridge**



Elevation View

**Benton County
Oak Street CID Bridge**



Deck View

**Benton County
Oak Street CID Bridge**



Concrete Bathtub Superstructure

**Benton County
Oak Street CID Bridge**



Soffit View

**Benton County
Oak Street CID Bridge**



Orientation to Y-Intersection

Walla Walla County Lowden Bridge



Elevation View

Walla Walla County Lowden Bridge



Deck View



Walla Walla County Lowden Bridge

Scour at Center Pier and Riprap Mitigation

Walla Walla County Lowden Bridge



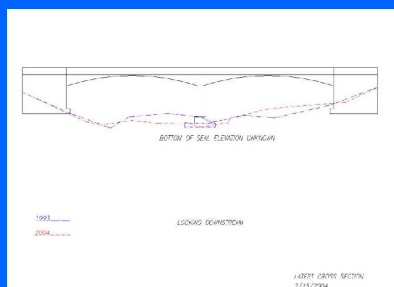
Exposed Construction Formwork

Walla Walla County Lowden Bridge



Channel Erosion

Walla Walla County Lowden Bridge



Cross Sections

**City of Waitsburg
Touchet River Bridge**



Elevation View

**City of Waitsburg
Touchet River Bridge**



Deck View

**City of Waitsburg
Touchet River Bridge**



1996 Flood

**City of Waitsburg
Touchet River Bridge**



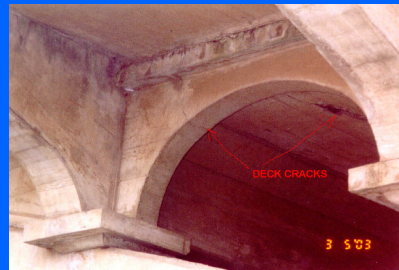
High Water Drift Damage

**City
of
Waitsburg
Touchet River
Bridge**



Abutment Scour

**City of Waitsburg
Touchet River Bridge**



Concrete Cracks and Deterioration

**Klickitat County
Wahkiacus Big Klickitat**



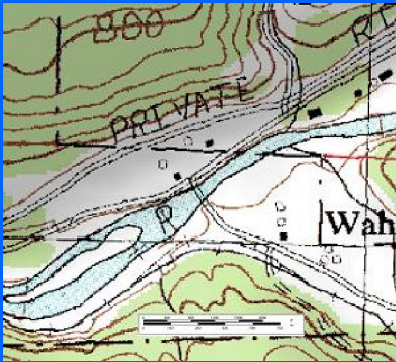
Elevation View

**Klickitat County
Wahkiacus Big Klickitat**



Deck View

Klickitat County Wahkiacus Big Klickitat



River Topography

**Klickitat
County
Wahkiacus
Big Klickitat**



Abutment Scour

**Klickitat
County
Wahkiacus
Big Klickitat**



**Abutment Damage
due to Settlement
Caused by Scour**

**Klickitat County
Wahkiacus Big Klickitat**



Scour at Abutment Wingwall

**City of Lynden
Fishtrap Creek-N 14th St**



Elevation View

**City of Lynden
Fishtrap Creek-N 14th St**



Deck View

**City of Lynden
Fishtrap Creek-N 14th St**



Ecology Block Backwall & Water Staining

Lincoln County East Pfeifer Bridge



Elevation View

Lincoln County East Pfeifer Bridge



Deck View

Lincoln County East Pfeifer Bridge



Previous Mitigation and Subsequent Scour

Lincoln County East Pfeifer Bridge



Abutment Cracking and Riprap Repair

Lincoln County East Pfeifer Bridge



Bearing Damage

Lincoln County East Pfeifer Bridge



Bridge Soffit

Pierce County Mashell River Bridge



Elevation and Channel View

Pierce County Mashell River Bridge



Deck and Approach View

Pierce County Mashell River Bridge



Split Channel Causing Scour Problems

Klickitat County Marvel Bridge



Partial Elevation View

Klickitat County Marvel Bridge



Deck View

Klickitat County Marvel Bridge



Water Line

Klickitat County Marvel Bridge



Other Utilities

King County Fifteen Mile Creek Bridge



Deck View

King County Fifteen Mile Creek Bridge



Soffit and Channel

King County Fifteen Mile Creek Bridge



Scour at Abutment

King County Fifteen Mile Creek Bridge



Pinpile Repair

Pierce County Puyallup River Bridge



Elevation View

Pierce County Puyallup River Bridge



Deck View

Pierce County Puyallup River Bridge



Roadway Geometry